

November 7, 2023

Grafton Zoning Board of Appeals
30 Providence Road
Grafton, MA 01519

**Subject: The Reserve at Miscoe Hills
Comprehensive Permit Plan Review**



100 GROVE ST. | WORCESTER, MA 01405

508-856-0321

508-816-0337

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Zoning Board of Appeals

Dear Zoning Board Members:

We received the following documents in our office October 31, 2023:

- Correspondence from Turning Point Engineering to Grafton Zoning Board of appeals dated October 25, 2023, Re: Peer Review Comment Responses, "The Reserve at Miscoe Hill"...
- Plans entitled The Reserve at Miscoe Hills, Comprehensive Permit Plan, 116 Upton Street, Grafton, Massachusetts dated May 17, 2023 and revised October 25, 2023, prepared by Turning Point Engineering for Upton Road Properties, LLC. (26 sheets)
- Bound document entitled Stormwater Management Report for The Reserve at Miscoe Hills, A Comprehensive Permit, 116 Upton Street, Grafton, MA dated May 17, 2023 and revised October 25, 2023, prepared by Turning Point Engineering for Upton Road Properties, LLC.
- Document entitled The Reserve at Miscoe Hills, Comprehensive Permit Application – Revision 2, Local Laws & Regulations; Non-Compliance dated October 25, 2023.
- Plan sheets entitled The Reserve at Miscoe Hills, ...Pre-Development Drainage Map, Post-Development Drainage Map and Catch Basin Areas Map dated May 17, 2023 and revised October 20, 2023, prepared by Turning Point Engineering. (3 sheets)

Graves Engineering, Inc. (GEI) has been requested to review the plans and supporting materials for compliance with the applicable Grafton Zoning By-Law amended through June 20, 2020; Zoning Board of Appeals; Rules and Regulations Governing Comprehensive Permit Applications Under General Laws Chapter 40B, Grafton, Massachusetts; Town of Grafton Conservation Commission Regulations Governing Stormwater Management dated May 28, 2013 and revised September 17, 2021, and Regulations for the Administration of the Grafton Wetlands Protection Bylaw amended through May 2017; Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook and standard engineering practices. As part of our initial review, GEI performed a reconnaissance site visit on July 18, 2023. GEI also visited the project entrance and surrounding area on July 27, 2023 to observe stormwater flow paths.

This letter is a follow-up to our previous review letter dated July 26, 2023. For clarity, comments from our previous letter are *italicized* and our comments to the design engineer's responses are depicted in **bold**. Previous comment numbering has been maintained.

Our comments follow:

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WASTEWATER STORMWATER WATER SITE DEVELOPMENT SURVEYING

Grafton Zoning By-Law

1. *GEI has no issues relative to compliance with these by-laws. GEI will be prepared to discuss the applicant's waiver requests with the Zoning Board of Appeals.*
Waiver requests were discussed at the October 5, 2023 public hearing. GEI will be prepared to further discuss the applicant's waiver requests, if necessary, during the November 9, 2023 public hearing.

Zoning Board of Appeals: Rules and Regulations Governing Comprehensive Permit Applications Under General Laws Chapter 40B

2. *GEI has no technical issues with the legend being provided only on Sheet C-1.1 nor with the utilization of NAVD 88 as the vertical datum. (§3.13)*
No further comment necessary.
3. *The site plans or building plans need to identify the proposed affordable units. (§3.13.2.2 & §3.13.3.7)*
Acknowledged. The plan set now includes Sheet C-9.1, which identifies the locations of the affordable dwelling units and the number of bedrooms for each dwelling unit.
4. *Only one dumpster is proposed. Given the number of proposed dwelling units, the site layout should provide more than one dumpster to properly accommodate the expected use. Further, the proposed dumpster must be moved back from the parking area to allow passenger vehicles occupying the end parking spaces to maneuver out of the parking spaces. Construction details of the dumpster pad and appropriate screening must be provided. (§3.13.5.24)*
Acknowledged. The trash enclosure on the east side of the site was enlarged and moved back from the vehicle maneuvering area, a second trash enclosure was added at the southwest corner of the parking area. And a construction detail of the trash enclosure was added to Sheet C-7.1.
5. *The plans must indicate the size and material for the water main to be installed in Old Upton Street. (§3.13.6.7)*
Acknowledged. A label for the water main's size and material was added to Sheet C-4.1.
6. *The plans must show the proposed limit of work at the southern property corner near N/F Atchue and N/F Ellis. The plans must also show the limit of work to follow the drip line of existing trees to remain. (§3.13.8.5)*
Acknowledged. Sheet C-6.1 was revised to show the limit of disturbance at this location.
7. *Trees larger than 16" in diameter must be shown and identified as whether to remain or be removed. GEI recommends that the site design include retaining mature trees between Old Upton Street and the existing barns. Please see Photos 1 and 2 at the end of this section for examples of trees that should be retained and please see Photo 3 for a general view of the assortment of mature trees as viewed from within the site. (§3.13.8.6)*
Acknowledged. Tree symbols were added to Sheet C-2.2 and those trees to be saved have been noted as such.

8. *Given the extent of clearing and exposed area, existing topography, and the site's soil conditions, the sedimentation and erosion control plan should not rely only on perimeter erosion controls. Later in the design phase, the plan should include interior erosion control measures such as temporary sedimentation basins. (§3.13.9.1 & §3.13.9.4)*

Acknowledged. Sheet C-6.1 was revised to include temporary sediment basins.

Grafton Wetland By-Law and Regulations

9. *All work needs to be moved out of the "25' No Disturb Zone" adjacent to wetland resource areas. The construction of Infiltration Basin 2 proposes work up to the edge of a wetland resource area. The area within the "25' No Disturb Zone" consists of young and mature trees that provide shading of the stream and presumably the buffer zone provides upland habitat proximate to the stream. GEI recommends that this regulation not be waived. Please see Photo 4 for a view of the "25' No Disturb Zone" where Infiltration Basin 2 is proposed. Sheet C-5.0 also proposes excavation about five feet into the "25' No Disturb Zone" near wetland flag WF-28 at the south end of the site. (§V.C.5.a)*

Acknowledged. Except for the outlet pipes (discussed during a public hearing) and approximately 100 square feet of earth berm adjacent to the outlet pipes, the work associated with Infiltration Basin 2 was moved out of the 25' No Disturb Zone.

Grafton Regulations Governing Stormwater Management

10. *The project documents need to demonstrate compliance with the average annual pollutant removal requirements of these regulations (i.e., 90% total suspended solids removal and 60% total phosphorus removal). (§6.B.4)*

Documentation was submitted to demonstrate compliance with the 90% total suspended solids removal requirement. The design engineer responded narratively that the project has been designed to be compliant with the phosphorus removal requirements, however documentation needs to be submitted to support that position.

Hydrology, Hydraulics and MassDEP Stormwater Management

11. *GEI reviewed the hydrology computations and found them to be in order provided that the following comment is addressed.*

GEI reviewed the revised hydrology computations and found them to be in order except as noted in the following two comments.

- A. **Because the roof drain is proposed to connect to DMH 12, the southern half of Building #100 needs to be modeled as part of Subcatchment 4S, not part of Subcatchment 5S.**
 - B. **The invert elevations of the outlet pipes of Infiltration Beds #1 and #2 were modeled 0.2 to 0.4 feet higher than the elevations shown in the Drainage Schedule on Sheet C-5.1. The information needs to be consistent.**
 - C. **If the post-development plan is revised for any other reason, then it should also be revised to show Infiltration Basin 2 being in Subcatchment 1S, not in Subcatchment 2S. Nevertheless, the modeling of Subcatchments 1S and 2S was in order.**
12. *Analysis point AP1 consists of tributary area from the development site that discharges to the stream at the northwest corner of the development site and tributary area that discharges to*

Old Upton Street. The design engineer needs to determine whether the stream and the Old Upton Street runoff merge near the development site or if the two are directed to different locations (e.g., the stream to the wetland off Meadowbrook Road and the Old Upton Street runoff to the Upton Street drainage system). If the latter, then AP 1 needs to be subdivided.

Acknowledged. There are two distinct stormwater discharge points, and the hydrology computations were revised to recognize these two points. Stormwater discharged to the stream at the northwest corner of the development flows northeasterly and crosses under Upton Street via a large culvert. Stormwater discharged to Old Upton Street and Upton Street flows easterly to a swale adjacent to Upton Street and eventually crosses Upton Street via a different culvert than the first discharge point.

13. *Compliance with the MassDEP Stormwater Handbook and Stormwater Standards is reasonable except as noted in the following two comments.*

Compliance with the MassDEP Stormwater Handbook and Stormwater Standards is reasonable provided that comment #28 is addressed.

14. *At Infiltration basins #1 and #2, least one foot of freeboard needs to be provided as measured from the emergency spillways to the top of the berms. The spot elevation for Infiltration Basin #1's emergency spillway is the same elevation as the top of the berm and only 0.7 feet of freeboard is proposed at Infiltration Basin #2.*

Acknowledged. The revised plans and hydrology computations show that at least one foot of freeboard will be provided during a 100-year storm event.

15. *GEI did not receive a separate Illicit Discharge Statement as stated in the Stormwater Report; such a statement needs to be provided.*

Acknowledged. An Illicit Discharge Statement was included in the revised Stormwater Management Report.

General Engineering Comments

16. *All accessible routes where the grade exceeds 5.0% and is no greater than 8.3% are considered ramps and therefore require handrails. The ramp locations are shown on Sheet C-5.0. The locations of the handrails need to be shown on the plans and a construction detail of the handrails included in the plan set. Also, the pedestrian route from the leasing office parking area to the leasing office exceeds 5.0% and requires handrails.*

Acknowledged. Sheet C-3.1 was revised to label the proposed ramps where ramps are proposed and Sheet C-3.1 refers to a "Typical Sidewalk Ramp" construction detail on Sheet C-7.6.

17. *The size length and slope of the sewer service to Building #3 is missing.*

Acknowledged. The information was provided on Sheet C-4.1 and the Sewer Schedule on Sheet C-4.1 was revised.

18. *Considerable flow is directed to the swale behind buildings 5 & 6. Calculations must be provided to ensure scouring does not occur within the swale or at the swale's discharge point west of Building #2.*

Acknowledged. The Grading and Drainage Plan (now Sheet C-5.1) was revised to reduce the concentration of stormwater behind Buildings #500 and #600 by adding a catch basin behind Building #500 and by providing multiple stormwater discharge points from the pervious area to the WF-1 to WF-25 wetland system west of Building #600.

19. *The proposed grading and tree clearing for Infiltration Basins 1 & 2 is directly along the property line abutting N/F Kenneth Gowell. A visual buffer should be provided between the developed site and the abutter.*

The limit of clearing on Sheets C-3.1 and C-5.1 between Infiltration Basin 2 and the abutter was revised to be approximately 25 feet from the property line, which is reasonable in GEI's opinion. However, during the preparation of construction plans Sheet L-1.0 will need to be revised to reflect the tree line revision.

20. *The Upton Street edge-of-pavement should be shown on the plans.*

Acknowledged. The Upton Street edge-of-pavement was added to the plans.

21. *The pavement on Old Upton Street near the project entrance has significant cracking and off-site water and sewer utilities are proposed along Old Upton Street. GEI recommends that the pavement surface be replaced along the route of the off-site utilities in Old Upton Street and continuing northeasterly past the project entrance to Upton Street and that the method of pavement resurfacing (e.g., full depth reclamation) be in accordance with Grafton DPW requirements.*

The design engineer responded that the portion of Old Upton Street is under MassDOT jurisdiction, and that (road) surfacing and traffic markings will be discussed during the future MassDOT review process. GEI recommends discussion with MassDOT and/or Grafton DPW based upon the jurisdictional authority.

General Comments

22. *On Sheet C-6.1, General Sequence of Construction Note 12 references Sheet C-1.0 for "Erosion and Sediment Control Requirements". The reference needs to be made to Sheet C-6.2.*

Acknowledged. Note 12 was revised.

23. *The Traffic Impact Analysis was not reviewed by GEI.*

No further comment necessary.

24. *The Architectural Floor and Elevations Plans were not reviewed by GEI.*

No further comment necessary.

25. *GEI has not reviewed the plans with respect to the water main or sewer main design. We understand that the Grafton Water District (GWD) will review the project's water design and the Grafton Sewer Department will review the project's sewer design.*

No further comment necessary.

Waiver Requests

26. *The plans propose 256 parking spaces or 1.68 parking spaces per dwelling unit whereas the Zoning By-Law requires 2.25 parking spaces per dwelling unit. Supporting data concerning the proposed number of parking spaces was submitted in Tab 28 of the Comprehensive Permit Application. The supporting information referenced Land Use Code (LUC) 220 in a document published by the Institute of Traffic Engineers. LUC 220 pertains to low-rise multi-family housing in buildings containing one or two levels of residence. The plans propose three to four levels of residence; LUC 221 is more appropriate. Also, the supporting information cites average parking demands, i.e., 50% of the time the parking supply will be exceeded.*

GEI recommends that the proposed parking rates meet or exceed the 85th percentile demands.

The plans were revised to propose a total of 285 parking spaces available for use by persons associated with the residential development and two more parking spaces dedicated to “non-resident trail parking.” Excluding the non-resident parking, the proposed parking ratio will be 1.87 parking spaces per dwelling unit. Considering information available from the Institute of Traffic Engineers, GEI has no issue with the proposed number of parking spaces.

Additional Comments, November 7, 2023

27. Because of grades that exceed a maximum of 5.0% for a walkway (521 CMR 22.00 – Architectural Access Board), the plans do not propose an accessible route between the driveway entrance at Old Upton Street and the developed portion of the site. GEI understands that the applicant may be considering an application for a variance from the Massachusetts Architectural Access Board. Such a variance application would require the applicant to demonstrate that full compliance with 521 CMR is *impracticable* as defined in 521 CMR. In GEI's opinion, the applicant should consider adding ramps where necessary to address grades that exceed 5.0%. (Ramps are already proposed in front of Buildings #300, #400, #600 and between Building #600 and the leasing office.) GEI prepared the attached concept sketch of an accessible route from the driveway entrance to the developed portion of the site and to each building therein. Implementing the concept would require adding three sets of ramps, eliminating one parking space, and eliminating or relocating another parking space.
28. Soil testing needs to be performed at Infiltration Bed #2 to demonstrate compliance with the required groundwater offset. Concurrent with this soil testing, confirmatory soil testing should also be performed at Infiltration Bed #1 rather than rely on soil testing located away from the footprint of the infiltration bed.
29. A streetlight needs to be provided to illuminate the intersection of the site driveway and Old Upton Road. Depending upon where it's relocated, the streetlight may be able to be installed on utility pole UP #50.
30. At the July 27, 2023 public hearing, there was discussion about adding a guardrail between the relocated driveway that provides access to 126 Upton Street and the level spreader adjacent to the relocated driveway. GEI recommends that the guard rail be added to the plans.
31. Pipe sizing calculations were missing from the revised Stormwater Management Report and will need to be submitted concurrent with the submittal of construction plans.
32. On Sheet C-7.5, in the Cultec Recharger 330XLHD Chambers construction detail, the top of stone elevation and top of chamber elevation for Infiltration Bed #1 and the top of chamber elevation for Infiltration Bed #2 are typographical errors that need to be corrected when the construction plans are prepared.
33. GEI has no issue with the light pole locations or the lighting levels shown on Sheet C-10.1

34. In GEI's opinion, the comments contained herein that warrant plan or supporting document revision could be addressed as a condition in the Comprehensive Permit and review of those revisions could occur during review of the construction plans. GEI will be prepared to discuss this follow-up review in-person at the November 9, 2023 public hearing.

We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,
Graves Engineering, Inc.

A handwritten signature in black ink, appearing to read 'Jeffrey M. Walsh', is written over the company name.

Jeffrey M. Walsh, P.E.
Principal

Attachment

cc: Stephen O'Connell; Turning Point Engineering
Travis Brown; Turning Point Engineering

Concept Sketch

Potential
Accessible Route
(Ramps required)



TURNING POINT ENGINEERING
CHL. SITE DESIGN

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APPROVAL BY THE TOWN OF DRAFTON ENGINE BOARD
OF APPEALS ACTING AS PLANNING BOARD IN ITS
CAPACITY AS THE COMPREHENSIVE PLANNING GRANTING
AUTHORITY UNDER REG. 40B

DATE: _____
BY: _____

THIS CERTIFIES THAT THE NOTICE OF APPROVAL OF
THIS PLAN BY THE DRAFTON TOWN BOARD OF
APPEALS HAS BEEN RECEIVED AND RECORDED ON
AT: _____
RECEIVED DURING THE 30 DAYS NEXT AFTER SUCH
RECORD OF MAP NO. 022

WORK SHEET: _____ DATE: _____

THE RESERVE
AT MISCOE HILLS
116 UPTON STREET
GRAFTON, MASSACHUSETTS 01519

PROJECT NO. 01519

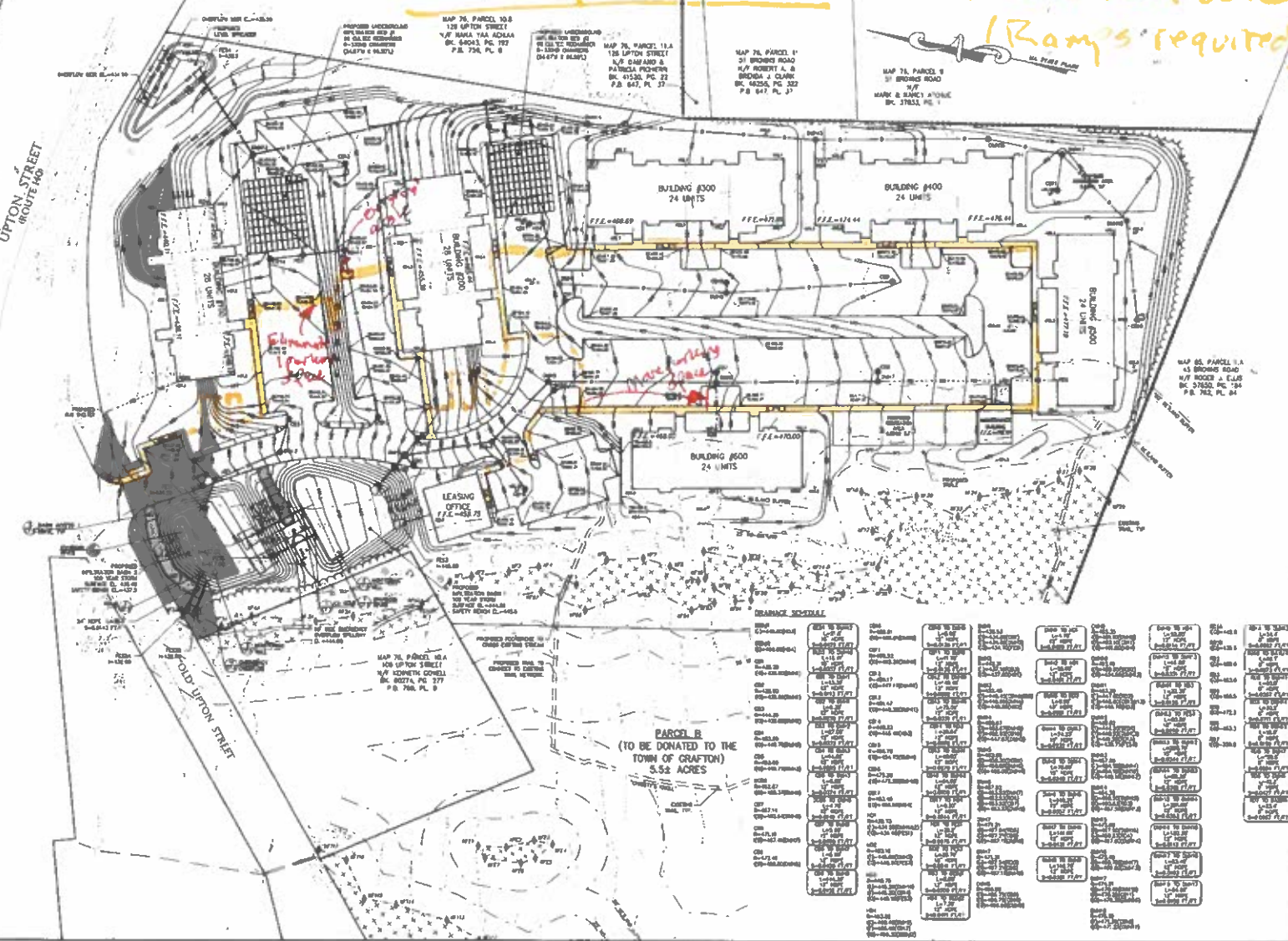
Eastland Partners, Inc.
116 Upton Street
Grafton, MA 01519

REV.	DATE	DESCRIPTION
1	11/16/10	FOR SUBMITTAL TO TOWN ENGINEER

GRAPHIC SCALE
1 inch = 40 feet

SHEET TITLE
GRADING & DRAINAGE PLAN

SHEET NO.
C-5.1



NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION
1	116 UPTON STREET	11	116 UPTON STREET	21	116 UPTON STREET	31	116 UPTON STREET
2	116 UPTON STREET	12	116 UPTON STREET	22	116 UPTON STREET	32	116 UPTON STREET
3	116 UPTON STREET	13	116 UPTON STREET	23	116 UPTON STREET	33	116 UPTON STREET
4	116 UPTON STREET	14	116 UPTON STREET	24	116 UPTON STREET	34	116 UPTON STREET
5	116 UPTON STREET	15	116 UPTON STREET	25	116 UPTON STREET	35	116 UPTON STREET
6	116 UPTON STREET	16	116 UPTON STREET	26	116 UPTON STREET	36	116 UPTON STREET
7	116 UPTON STREET	17	116 UPTON STREET	27	116 UPTON STREET	37	116 UPTON STREET
8	116 UPTON STREET	18	116 UPTON STREET	28	116 UPTON STREET	38	116 UPTON STREET
9	116 UPTON STREET	19	116 UPTON STREET	29	116 UPTON STREET	39	116 UPTON STREET
10	116 UPTON STREET	20	116 UPTON STREET	30	116 UPTON STREET	40	116 UPTON STREET